

Remarks

Applicant gratefully acknowledges the allowance of claims 5 and 17-20.

A Declaration of the inventor, Keith McCrea, is submitted herewith to explain the meaning of the term "work roll" as it is used by those skilled in the art in respect of the manufacture of sheet steel and other sheet metal products. Work rolls are also known as rolling mill rolls and the term "work roll" is a term of art in the manufacture of sheet steel and other sheet metal products. As explained by Mr. McCrea, work rolls are used in a rolling mill to manufacture sheets of metal. The patents and literature reference appended to Mr. McCrea's Declaration and which have not already been cited in the prosecution of this application have also been provided in an accompanying Supplemental Information Disclosure Statement.

Independent claims 1 and 8 have been amended to include a description of the surface characteristics measured by the apparatus and method of the invention. The basis for the amendments appears in original claim 8, which has now been cancelled, and in various portions of the specification. The characteristics measured have to do with work rolls as herein defined.

Accordingly, the present application has to do with a non-contact apparatus and method for measuring the crown, taper, Ra, PPI, traverse, body diameter, defects or inclusions of a work roll and the term "work roll" has the meaning set forth in the specification, the Declaration of Mr. McCrea and the appended art and literature illustrating that the term "work roll" has a specific meaning in the art to which the present application pertains.

Rejections under 35 U.S.C. §103(a)

Two rejections under 35 U.S.C. §103 are made in the Office Action and are based upon seven references. Six of the references have to do with remote and non-analogous art, manifestly far removed from the art of apparatus and methods for measuring the shape or surface characteristics of a work roll. More particularly, the references have nothing to do with measuring the crown, taper, Ra, PPI, traverse, body diameter, defects and inclusions of a work roll as now enumerated in the amended claims. The one reference that relates to the art which is the subject of applicant's invention is Tait. But Tait describes a measuring apparatus which requires contact with the roll periphery – precisely the type of apparatus over which the present invention is an improvement.

The determination that a reference is from a non-analogous art is two-fold. "First we decide if the reference is within the field of the inventor's endeavor. If it is not, we proceed to determine whether the reference is reasonably pertinent to the particular problem with which the inventor was involved." *In re Wood*, 599 F.2d 1032, 1036 (CCPA 1979); *In re Deminski*, 796 F.2d 436, 442 (Fed. Cir. 1986). The present invention has to do with a non-contact apparatus for measuring crown, taper, Ra, PPI, traverse, body diameter, defects or inclusions of a work roll.

Claims 1-4, 6-9 and 11-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Popovic, et al., in view of White, et al. or Tait, and further in view of either Nakamura, Izawa, et al. or Honma, et al.

Popovic describes an aerodynamically floatable device for detecting charge deficient spots in electrostatic imaging members. The reference is not within the field of

the inventor's endeavor because it has nothing to do with measuring the shape or surface characteristic of a work roll. The rolls of Popovic are not work rolls as defined in the relevant art and applicant's specification. Furthermore, Popovic is not pertinent to the problem with which applicant was involved because it has to do with detecting charge deficient spots in electrostatic imaging members and not measuring crown, taper, Ra, PPI, traverse, body diameter, defects or inclusions, none of which have to do with charge deficiencies, on a work roll. Finally, as admitted in the Action, Popovic does not describe the assembly of applicant's invention.

The combination of White or Tait with Popovic cannot support the rejection. White relates to the nonanalogous art of transducers for inspecting the surface of a dryer roll for drawing tissue paper webs. The surface characteristics measured according to White are gathered and stored to create data which may be used in maintaining the shell for the dryer roll. The dryer roll is not a work roll as defined in the relevant art and by the present application and the data collected by the transducer of White has nothing to do with the shape and surface characteristics of a work roll. Tait does relate to the relevant art and illustrates a work roll which is referred to in the Tait specification as a rolling mill roll. But the detection device of Tait requires contact with the roll periphery. There is no teaching or suggestion in Tait of a noncontact measuring device of the type disclosed and claimed in the present invention. (See Tait at col. 4, ln. 5-10.)

The tertiary references, Nakamura, Izawa and Honma, all relate to nonanalogous art and cannot support the rejection. Nakamura has to do with an electrostatic photoconductor on the peripheral surface of a rotating drum and the use of a cleaning

means in the form of a rotary brush which must be in contact with the peripheral surface of the drum. Izawa has to do with a method of manufacturing a tube-covered roller for use in a fixing device for heat fixing an unfixed toner image. The sensor 8 of Izawa is not even located in proximity to the roll. (See Izawa, Fig. 2.) Finally, Honma has to do with rollers used in the printing art. This is a nonanalogous art. It is unrelated to work rolls employed in the manufacture of sheet metal.

In light of the foregoing, withdrawal of the rejection under 35 U.S.C. §103(a) is respectfully requested.

Claims 1-4, 6-9 and 11-16 are rejected under 35 U.S.C. §103(a) as being unpatentable over Hashimoto, et al. in view of Popovic, et al., in view of White, et al. or Tait and further in view of either Nakamura, Izawa, et al. or Honma, et al.

Hashimoto has to do with an information processing system for manufacturing building materials including steel sheets. The system includes a production control means. But Hashimoto relates to a nonanalogous art because the reference has nothing to do with measuring the shape and surface characteristics of a work roll. The reference is not reasonably pertinent to the particular problem with which applicant was involved because it has nothing to do with the noncontact measurement of the crown, taper, Ra, PPI, traverse, body diameter, defects or inclusions of a work roll.

The remaining references cited by the Examiner cannot overcome the deficiencies of Hashimoto. As discussed above, with the exception of Tait, all of the references relate to a nonanalogous art, and they have nothing to do with measuring the shape or surface characteristics of a work roll. The device of Tait requires contact with the surface of the roll and this is precisely the type of apparatus over which the

present invention is an improvement. Withdrawal of the rejection is respectfully requested.

Applicant has considered the Examiner's helpful comments in respect of the Remarks submitted with the previous amendment filed February 7, 2006. We believe the amendments submitted herewith, the Declaration and the foregoing remarks address the issues raised and justify an allowance of all of the pending claims.

Conclusion

The instant application is believed to be in condition for allowance. A Notice of Allowance of claims 1-8 and 10-20 is respectfully requested. The Examiner is invited to telephone the undersigned at (908) 722-0700 if it is believed that further discussions, and/or additional amendment would help to advance the prosecution of the instant application.

A petition for a three-month extension of time for this response is enclosed. If a further extension is needed, applicants request that this be considered a petition therefor. Please charge any required petition fee to the Deposit Account No. 14-1263.

Please charge any insufficiency of fees, or credit any excess, to the Deposit

Account No. 14-1263.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Wm R. Robinson', written over a horizontal line.

William R. Robinson
Registration No. 27,224

September 7, 2006

NORRIS, McLAUGHLIN & MARCUS
P.O. Box 1018
Somerville, NJ 08876-1018
(908) 722-0700

16510-017